

Application Serial No. 10/649,311

Remarks

Claims 1, 3, 11, 17, 26, 33, 34, and 54 have been amended. Claims 5-7, 10, 15, 21-23, 36, 42, 43, 45, 48, and 51-53 stand withdrawn, leaving claims 1-4, 8, 9, 11-14, 16-20, 24-35, 37-41, 44, 46, 47, 49, 50, and 54-60 pending in the application. The withdrawn claims are believed generic to the claims from which they depend and allowance of the generic claim should result in the allowance of any and all withdrawn claims depending from the allowed generic claim.

An informality was recognized in claim 3 and claim 3 has been amended to remedy this informality.

The pending claims have been rejected as obvious in view of multiple references. Applicant requests the Examiner reconsider these rejections in view of the amended claims and the remarks.

The Examiner is respectfully referred to MPEP §2142, which recites, in part:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The pending claims are allowable for at least the reason that the cited references fail to teach or suggest all of the limitations recited by the claims.

Referring first to claim 1, a method of forming a capacitor is recited that includes forming an inwardly-tapered-sidewall spacer within an opening of a

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capacitor electrode forming electrode-forming layer. Claim 1 has been amended to recite anisotropically etching the spacer and, after etching the spacer, depositing a first capacitor electrode layer over the inwardly-tapered-sidewall spacer within the opening. Claim 1 is allowable for at least the reason the cited references do not teach or suggest anisotropically etching an inwardly-tapered-sidewall spacer.

The Examiner has cited the combination of Jang and Won as rendering claim 1 obvious. However, neither of these references teach or suggest anisotropically etching an inwardly-tapered-sidewall spacer as recited in claim 1. Referring first to the Jang reference and particularly Figs 5, 6, and 10 and accompanying text, Jang describes the etching of the oxide layer 110 to form openings 114. As is shown in Fig. 5, the openings are tapered. Jang then describes the formation of slope-improving layer 116 over the openings. As shown in Fig. 6, both interior walls of layer 116 are tapered. Jang then describes the etching of the layer 116 prior to providing conductive material to form the capacitor. As shown in Fig. 10, the interior walls of layer 116 after this etching remain tapered. The tapering of layer 116 is further exemplified with reference to Fig. 13. As can be readily observed from Fig. 13, the capacitor material 122 is substantially "v" shaped which is understandable since it was formed on layer 166 having tapered interior walls. In describing its method for forming capacitors, Jang neither teaches nor describes anistropically etching as recited in claim 1. While Won has also been cited for other purposes in combination with Jang, it neither teaches nor suggests anisotropically etching.

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For at least the reason the cited references neither teach nor suggest anisotropically etching an inwardly-tapered-sidewall spacer, claim 1 is allowable.

Claims 2-4, 8, 9, and 11-14 are pending, depend from claim 1, and are allowable for at least the reasons given above regarding claim 1. Claims 5-7 and 10 are withdrawn but depend from an allowable independent claim and as such are allowable as well.

Claim 17 has been amended to recite anisotropically etching the sidewall spacer and thereafter forming an electrode layer. Claim 17 stands rejected as obvious in view of Jang and Won. As discussed above, neither Jang nor Won, alone or in combination, teach or suggest anisotropically etching. For at least the reason the cited references do not teach or suggest all the limitations of claim 17, claim 17 is allowable.

Claims 18-20 and 24-32 are pending, depend from claim 17, and are allowable for at least the reasons given above regarding claim 17. Claims 21-23 currently stand withdrawn, but as they depend from an allowable base claim they are in condition for allowance.

Claim 33 recites, in pertinent part, anisotropically etching the spacing layer to form a spacer within the opening. Claim 33 has been rejected as obvious in view of Jang and Won. As discussed above neither Jang nor Won, alone or in combination, teach or suggest anisotropically etching as recited in claim 33. Claim 33 has also been rejected as obvious in view of Oh and Jang with particular reference to paragraph 49 of Oh. Applicant has reviewed paragraph 49 of Oh and can find no mention of anisotropically etching as recited in claim

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33. For at least the reason the cited references do not teach or suggest all the elements of claim 33, claim 33 is allowable.

Claims 34, 35, 37-41, 44, 46, 47, 49, 50, and 54-60 are pending, depend from claim 33, and are allowable for at least the reasons given above regarding claim 33. Claims 36, 42, 43, 45, 48, and 51-53 stand withdrawn but also depend from allowable claim 33 and should be allowed as well.

Claims 1-60 are in condition for allowance. Applicant requests allowance of claims 1-60 in the Examiners next action. The Examiner is requested to telephone the undersigned in the event that the next office action is one other than a Notice of Allowance.

Respectfully submitted,

Dated: 9/6/05

By: 

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